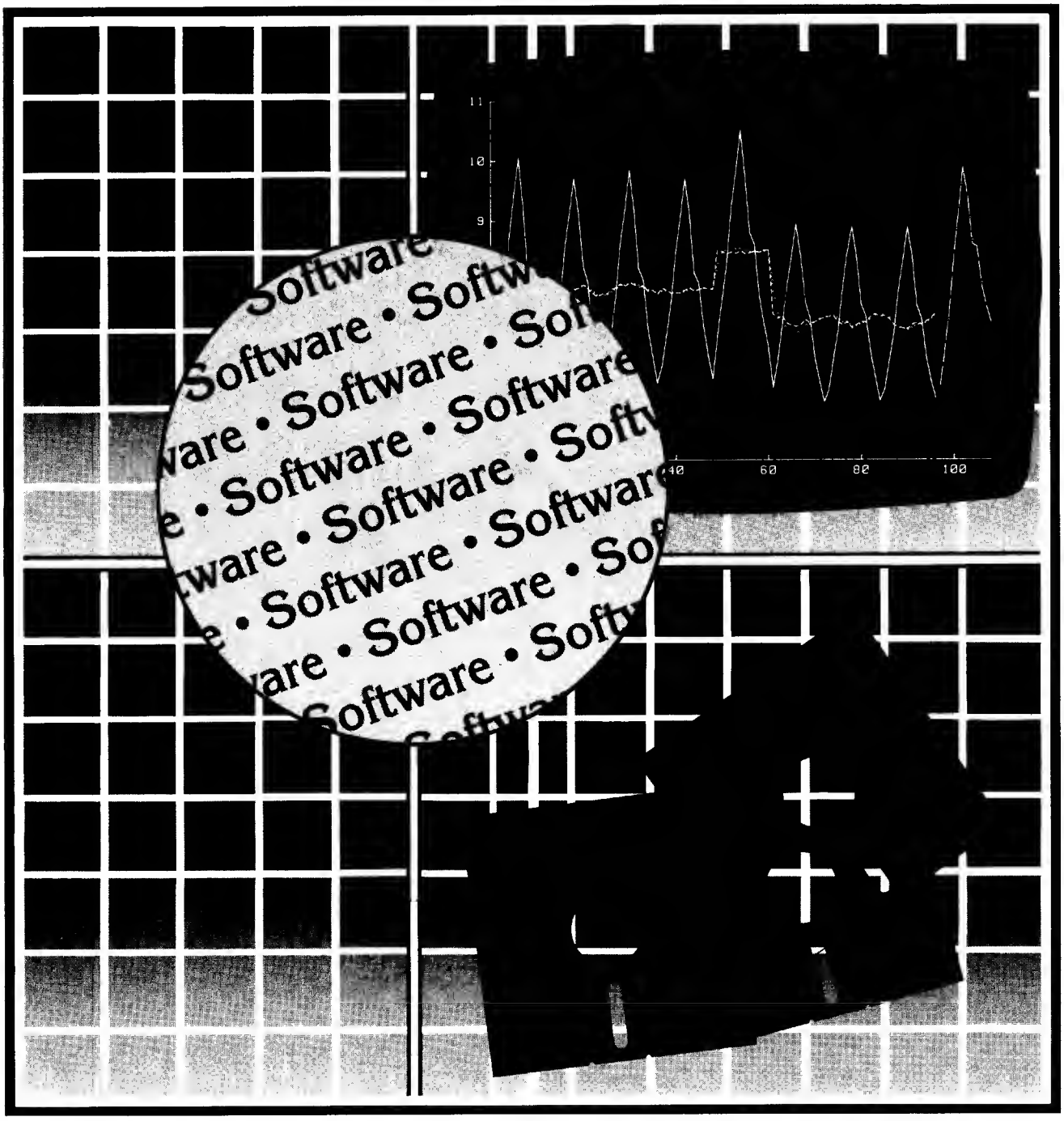
HP 9000 Series 200 Computers

HEWLETT PACKARD

BASIC 3.0 Documentation Guide and Master Index



BASIC 3.0 Documentation Guide and Master Index

for the HP 9000 Series 200 Computers

Manual Part No. 98613-90070

Hewlett-Packard Company
3404 East Harmony Road, Fort Collins, Colorado 80525

Printing History

New editions of this manual will incorporate all material updated since the previous edition. Update packages may be issued between editions and contain replacement and additional pages to be merged into the manual by the user. Each updated page will be indicated by a revision date at the bottom of the page. A vertical bar in the margin indicates the changes on each page. Note that pages which are rearranged due to changes on a previous page are not considered revised.

The manual printing date and part number indicate its current edition. The printing date changes when a new edition is printed. (Minor corrections and updates which are incorporated at reprint do not cause the date to change.) The manual part number changes when extensive technical changes are incorporated.

May 1984...First Edition

BASIC Documentation Guide

As with most products, learning how to use the manuals properly will help you get the most use from the product. In order to use the manuals most effectively, you should know both the objective and content of each manual.

This section describes the overall organization of the manual set and gives a brief description of each of the major manuals. The guide then describes the purpose of and notation used in the master index. An example of using the manuals and index is also provided. At the end of the manual, we invite you to make comments about the manuals on the enclosed card.

Structure of the Documentation

The information in the Series 200 BASIC documentation is divided into three general catagories, according to the function you are going to perform with the computer.

- installation and operating instructions
- programming techniques
- language reference information

The following paragraphs further explain the objectives and contents of each of the major manuals in the set. You are encouraged to pick up the manual and leaf through it as you read its description. Scanning the Table of Contents of each book will also help you get a quick, but broad, overview of the manual.

The Installation and Operating Guides

The *Installation Guides* show you how to get your computer "up and running". There is one *Installation Guide* for each of the Series 200 computers.

The *BASIC User's Guide* describes loading the BASIC operating system, configuring BASIC, and introduces you to several functions. If you are unfamiliar with HP BASIC, you should read this guide first.

The Techniques Manuals

The techniques manuals *help you learn the HP Series 200 BASIC language* by providing task-oriented example programs and corresponding explanations. The techniques manuals include the following:

- *BASIC Programming Techniques* describes writing, editing, storing, running, and debugging BASIC programs. The manual also describes such programming topics as string and math operations, using the real-time clock, and communicating with the operator.

  You may want to peruse individual chapters of interest in the main part of the manual. The Appendix section contains Error Messages and ASCII tables, and the Index section provides an index to the topics in this manual.
- *BASIC Interfacing Techniques* describes how to communicate with external devices. Both general and interface-specific techniques are described in the manual.

Read Chapter 1, "Manual Overview," to see this manual's objectives and contents. This chapter also describes the organization of information in the manual and briefly describes each chapter. You may want to scan chapters of interest in the main part of the manual. The "Useful Tables" contains information relevant to interfacing, and the Index provides an index to the topics in this manual.

- *BASIC Graphics Techniques* describes using the graphics capabilities of Series 200 computers. Plotting on the CRT and on external graphics devices are fully described in this manual, as well as using external graphics input devices.

  Chapter 1, "Introduction to Graphics," describes the objectives of the manual and assumptions made about your knowledge of BASIC programming. You may want to scan the individual chapters of the manual as your interest dictates. An index is also provided by this manual.

The Reference Manuals

The reference manuals are designed to *aid you while coding programs* by providing information about each keyword. The reference information consists of the following two manuals:

- The *BASIC Language Reference* provides a complete "dictionary" of precise descriptions of every keyword in the Series 200 BASIC language. Drawings are used to graphically show the proper syntax of each keyword, and any parameters are described in an accompanying table. The semantics section describes the resultant action of different keyword syntaxes.

  The "Keyword Dictionary" section is the main part of this manual, providing the following four sections: 1) "Language History," which provides valuable information about how and when the language has been revised and updated; 2) "Using the Keyword Dictionary," which describes what information is provided by the dictionary and explains how to use it; and finally 3) the actual dictionary entries. You should read the first two of these sections before attempting to use the rest of the manual.

  The "Glossary" provides concise definitions of technical terms used throughout the manual set, which you can refer to as you encounter unfamiliar terms. The "Interface Registers" section contains listings of all status and control registers of I/O paths, CRT, keyboard, and optional interfaces. The contents of the "Useful Tables" and "Error Messages" sections are self-evident. The "Keyword Summary" section provides a complete list of keywords in the Series 200 BASIC language, grouped according to the function that it performs.

- The *BASIC Condensed Reference* also provides a listing of all keywords and gives example statements for each. However, it only gives brief descriptions of the keywords, and it does not contain any syntax drawings or semantic information. Therefore, you will probably use it to check the spelling of a keyword or to see the parameters and corresponding order.

  The main sections of this manual are as follows: 1) brief explanations of system versions, data types, expression evaluation, graphics mapping and color model, and glossary; 2) alphabetized keyword listing with brief descriptions of each keyword; 3) summary of interface registers; and 4) useful tables, including key codes, error messages, and ASCII characters.

Structure of the Master Index

The master index provided by this guide references topics in the major manuals of the Series 200 BASIC documentation. This index was created by merging all of the information in each individual manual's index into one large index.

Referencing Scheme

Since the Master Index references topics in more than one manual, it must indicate which manual each entry references. To meet this requirement, each manual in the set has been designated by a mnemonic:

BPT: *BASIC Programming Techniques*

BIT: *BASIC Interfacing Techniques*

GPT: *BASIC Graphics Programming Techniques*

BUG: *BASIC User's Guide*

The following illustration shows an example of the format used in the index.

ASCII
Character Codes..... **BPT:**394
Character Set **BPT:**140
Characters, finding **BUG:**58,70,82,141
Data representation ... **BIT:**12,138,152
Files **BPT:**206
BUG:105,152

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Note the following key features of the index format:

- A mnemonic is always given, in bold font and followed by a colon, before any page number(s) are shown.
- Page numbers that follow the mnemonic are found in that manual (i.e., every page number is not preceded by the mnemonic).
- If there are references to more than one manual given for a single topic, each mnemonic and pages therein begin on a new line.
- A legend of mnemonic definitions is provided on the bottom of each page.

Using the Manuals

A preceding section described the objective and general contents of each type of manual in the set. If you are not familiar with the types of manuals and purposes thereof, please review that section.

Now that you know what each manual is to do for you and what information it contains, you are ready to begin using them.

An Algorithm for Using the Manuals

Although simplistic, here is a "two-step" procedure that you will probably take while using your computer to solve your programming problem:

1. Develop an algorithm for solving your problem, breaking it up into specific, manageable tasks. Work with one task at a time, expanding and refining each by using the following steps:
    a. Examine the mechanics of performing the task. Read the relevant discussion(s) in the appropriate techniques manual(s). Keep in mind that these manuals will probably only describe one or two approaches to performing elemental tasks. You may be able to expand or modify one of the fundamental algorithms presented to suit your particular needs. You may need to consult an advanced or specialized programming text to see how to design more complex, application-specific algorithms and programs.
    b. Determine what hardware the task will require, if any, and install it according to the appropriate installation or operating manual.
    c. Code your algorithm into a BASIC-language program. Consult the reference manual(s) to answer any questions about specific keywords.
    d. Test and debug your algorithm, which may require using both techniques and reference manuals.
2. Repeat step 1, breaking each task up into finer detail, until you have the solution.

An Example

Let's look at a simple, hypothetical scenario. Suppose that you unpacked all manuals and were told that this is the first one to read. After reading about the overall scheme of the documentation, you turn to the installation manual to get your computer "up and running."

Once your computer hardware is set up, turn to Chapter 1 of *BASIC Programming Techniques*, "Getting Started," to learn more about how to use the computer and BASIC language. When you feel comfortable using your computer to perform some elementary operations, suppose that you want to learn how to use mass storage files. If you were to look in the index under the topics "Mass storage" or "Files" you would find several references to topics on using files.

BPT: *BASIC Programming Techniques*
BIT: *BASIC Interfacing Techniques*
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The references to the *BASIC Programming Techniques* manual (BPT) pertain to Chapter 7: Data Storage and Retrieval. (If you were already familiar with this techniques manual, you know that the tabbed section called "Data Storage" contains the desired information.) The chapter contains a tutorial section, appropriately called "Mass Storage Tutorial," that gives some background on what mass storage is and how it is implemented on HP Series 200 computers. The chapter also contains a section called "Mass Storage Techniques" that presents some file-access programming techniques.

The references to the *BASIC Interfacing Techniques* manual (BIT) pertain to Chapter 10: I/O Path Attributes. The discussions give other examples of accessing files with an "interfacing" perspective.

The references to the *BASIC User's Guide* (BUG) primarily pertain to Chapter 6: Talking to Peripherals With BASIC.

After reading as much of these discussions as you feel necessary, you begin writing programs. As you code algorithms into the computer's BASIC language, you consult either the *BASIC Language Reference* or the *BASIC Condensed Reference* to answer questions about certain keywords; the one you consult depends on how much information you need.

Learning additional programming skills involves the same steps as learning the one presented here. First, consult the appropriate techniques manual to see if your task is described. If so, read the text, trying any examples given. Then, as you begin to write BASIC code for the algorithm that you develop, consult the appropriate reference manual(s).

Do the Manuals Work?

As mentioned at the beginning of this manual, the Series 200 BASIC documentation has been designed to help you in learning to use the system effectively. This survey has been included to help find out how fully you think we have accomplished this goal.

After using the manuals for a while, please take a few minutes to fill out the survey. Then tear it out and send it to us. We appreciate any and all comments, complaints, or commendations.

Subject Index

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BUG: BASIC User's Guide

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Manual Comment Sheet Instruction

If you have any comments or questions regarding this manual, write them on the enclosed comment sheet and place them in the mail. Include page numbers with your comments wherever possible.

If there is a revision number, (found on the Printing History page), include it on the comment sheet. Also include a return address so that we can respond as soon as possible.

The sheets are designed to be folded into thirds along the dotted lines and taped closed. Do not use staples.

Thank you for your time and interest.

MANUAL COMMENT SHEET

BASIC 3.0 Documentation Guide and Master Index
for the HP 9000 Series 200 Computers

98613-90070 May 1984

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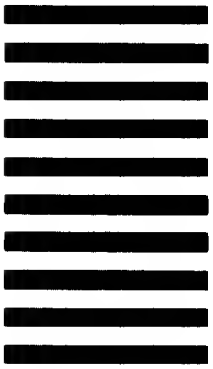

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Fort Collins, Colorado 80525

Part No. 98613-90070
E 0584

Printed in U.S.A.
First Edition, May 1984